Blood-forming stem cells treat advanced stage of MS

Posted: March 25, 2011

Created: 25/03/2011 - 07:16

A group in Greece has found that transplants of blood-forming stem cells in the bone marrow can treat some patients with multiple sclerosis. That work, published in the journal Neurology, could one day help the 400,000 Americans and 2.1 million people worldwide have MS (from the National MS Society).

The key here is "one day." Stem cell scientists have long listed MS, along with a variety of other autoimmune diseases such as lupus, as a likely candidate for treatment by blood-forming stem cells. The problem is that the transplants are extremely risky. Case in point, in the Greek study two of the 35 patients died from transplant-related complications.

The idea behind why the transplant could treat autoimmune diseases is simple. In diseases such as MS or lupus, the immune cells that are suppose to fight off infections instead begin attacking the body's own tissues. In the case of MS, they attack the lining of neurons in the spinal cord and brain. Without their protective insulation the neurons can't effectively transmit signals instructing the body to move.

Swap out the defective immune system with a fresh one and the person would be cured, right?

The problem so far has been in getting rid of the existing blood-forming system. In a bone marrow or blood-forming stem cell transplant, first the doctors must destroy a person's existing immune system with strong chemotherapy or radiation. This step is extremely risky. That's why a HealthDay story on this work quotes Aaron Miller, chief medical officer for the National Multiple Sclerosis Society and a professor of neurology at Mount Sinai School of Medicine in New York City as having doubts about this technique's widespread use:

"This is a very heroic form of therapy for multiple sclerosis [MS], which is unlikely, in my view, ever to have a major impact on the field," added Miller. "It's a substantially risky therapy -- the mortality rates have been in the 2-3 percent range . . . and it's hugely expensive.

Many groups are working on less toxic ways of clearing the patient's problematic blood-forming system. You can read about some of those attempts in a WebMD story about the MS trial. If they are successful, this approach could become less risky and offer an effective way of treating not just MS but all autoimmune diseases. That would be something to celebrate.

Here's a list of CIRM awards targeting MS, and our MS disease information page.

- A.A.

Tags: multiple sclerosis